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In the

Supreme Court of the United States

October Term, 1941.

No. ———.

CARBO-FROST, INC., CARBONIC DISPENSING, INC., and RUDD PATENTS CORPORATION, *Petitioners,*

vs.

STANLEY KNIGHT CORPORATION, JACK E. TAYLOR (Trading as TAYLOR ENGINEERING CO.) and SILVER CUP BEVERAGE CO., *Respondents.*

PETITION FOR WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SEVENTH CIRCUIT.

Petitioners pray certiorari to review a judgment of the Seventh Federal Circuit entered June 2, 1941 (R. 466).

Opinions Below.

The Federal District Court opinion (R. 365) of Judge John P. Barnes was filed April 8, 1940; that of Judge Evans, for the Circuit Court of Appeals (R. 462), June 2, 1941.

Federal Jurisdiction.

Petitioners, one the owner and the others exclusive licensees, of United States Letters Patent Nos. 1,785,326, issued December 16, 1930, and 1,855,313, issued April 26, 1932, filed a bill in equity (R. 2) against respondents in the Federal District Court for the Northern District of Illinois, Eastern Division, charging infringement of said Letters Patent and praying injunction and damages (R. 2). Federal jurisdiction rested upon Sec. 48 of the Act of March 3, 1911 (Judicial Code), 28 U. S. C. A., Sec. 109, and R. S. 4921, 35 U. S. C. A., Sec. 70.

Jurisdiction of Supreme Court.

The judgment below was entered June 2, 1941 (R. 466), affirming the decree of the District Court entered April 20, 1940 (R. 370), which dismissed the complaint for want of equity. Petition for rehearing, filed June 16, 1941 (R. 467), was denied July 16, 1941 (R. 467). Jurisdiction of this court is invoked under Sec. 240(a) of the Judicial Code, as amended by the Act of February 13, 1925.

Summary of the Matter Involved and Questions Presented.

A ruling is here sought whether the learned Seventh Circuit has decided a federal question in a way probably in conflict with applicable decisions of this court where the C. C. A. held anticipated and lacking in invention United States Patent No. 1,785,326, issued in 1930 to Harry B. Rudd (the invention covering an improved method and appliance for producing, distributing and marketing CO_2 gas), notwithstanding the record disclosed without dispute that (1) patent had issued, (2) plain-

tiffs were the owners and exclusive licensees thereof, (3) defendants' device imitated and infringed, (4) Rudd's apparatus (called a liquefier) was the first and only successful device of its kind in the commercial field, (5) the invention was epochal and revolutionized the art of producing and marketing CO_2 gas, (6) it reduced the cost to a small fraction thereof, saving millions, (7) it eliminated an economic waste which had existed in the industry for more than 75 years, and (8) every prior attempt represented some form of failure, or never passed the experimental stage.

No review of fact findings is sought. So far as determined in the courts below, they were in favor of petitioners (R. 368-9; 365; 462). The suit involved two patents issued to Rudd: 1,785,326 and 1,855,313. The District Court held both invalid (R. 369-70). On appeal the claims on 1,855,313 were abandoned (R. 372).

STATEMENT OF THE FACTS.

In retrospect Rudd's device is simple enough. Indeed, its simplicity was its undoing in the courts below. They condemned it for simplicity without considering its achievements. We believe and urge that the number of years that the problem remained unsolved and the magnitude of Rudd's accomplishment in finding the solution, should, under the expressed views of this court, be given due weight, and that when this is done it will be found that inventive genius is present, and that no prior patent or art anticipates or blocks the way.

Since Civil War times (R. 15) a nation-wide commercial demand has existed for CO_2 gas. It is used for carbonating beverages, and for other industrial purposes. Prior to Rudd's liquefier it was produced in central (generally "coke") plants, charged into heavy steel cylinders at the plant and from there shipped in the steel containers to the producers' distributing stations in various key cities, and from there sold and delivered in the containers to customers or users. When the cylinder was empty it was brought back to the distributing station, from whence it was returned to the plant to be refilled (R. 16-17). The standard steel cylinder weighed approximately 110 lbs. empty (R. 16), and, when charged, contained 50 lbs. of CO_2 gas. By this method, in every sale of 50 lbs. of gas, there was involved a freight bill on 270 lbs. of shipping weight; 160 lbs. (50 lbs. of gas and 110 lbs. of cylinder) on the outward journey, and 110 lbs. on the return journey of the empty cylinder (R. 16, 17, 18, 21, Plffs. Ex. 5, R. 233).

The distance from plant to distributing station and customer often ran from 200 to 800 miles (R. 20) and

the freight charge was enormous (R. 21). For example, that for shipping a cylinder containing 50 lbs. of gas from Newark, N. J., to Boston and back was approximately $1 (R. 21). Thus, there was a continuous stream of 110-lb. steel cylinders flowing in both directions from producer to user, in dispensing 50 lbs. of CO_2 gas.

This was standard practice in the art from the middle 1800's up to 1929 (R. 17), when Rudd's "liquefier" was developed and put into use. It was the first device of its kind, a pioneer, in the commercial field (R. 19, 39, 42, 264, 277, 278).

CO_2 gas is produced in three forms or phases—solid, liquid and gaseous. Solid CO_2 is known commercially as "dry ice." Its temperature is minus 109° F. Subjected to warmth it "melts" or sublimates into gas. In its gaseous state, if confined, it develops tremendous pressures (R. 14-15). At room temperature the pressure inside the ordinary CO_2 cylinder filled with gas is from 800 to 1,000 lbs. per square inch (R. 17).

In 1928 Rudd, a free-lance inventor, with the object of eliminating the CO_2 cylinder and the inevitable shipping expense attendant on its use, built his first liquefier (R. 32-33).

It is a steel cylinder of 150 lbs. capacity, about 10 inches in diameter and 4 ft. high, with an open top and a lid, hung by a chain, within the cylinder. The opening and lid are elliptical in shape. The lid and a rubber gasket around its rim engage the opening from the inside, fitting like an inverted stove lid (R. 18-19). The operation of the device is simple. Dry ice is spilled into the open top until the container is filled to the desired capacity. The operator then grasps the handle of the lid, drawing it up against the inside rim of the container. In two or three seconds the pressure developed from

within by the change in phase of the solid to gas seals the container (R. 47, 170, 171, 181, 182, 185). As more ice melts and more gas forms, the pressure increases and the seal tightens. In a comparatively short time all of the material inside is CO_2 gas, ready for use (R. 15, 18, 37, 38; Plffs. Ex. 11, R. 251; Plffs. Exs. 7 and 8 [Defs. infringing "converter"] R. 237-247; R. 386 [Rudd Pat. No. 1,785,326 in issue]).

Rudd's device is a most important contribution to the carbonic gas industry. It revolutionized the production, distribution and marketing of CO_2 gas. He installed his first commercial liquefiers in a restaurant and in Rockefeller Institute in New York City in 1928 (R. 18, 32, 33, 34, 270, 275). He organized his own companies, plaintiffs' Rudd Patents Corporation and Carbo-Frost, Inc. By 1932 they had about 300 liquefiers in operation in and around New York (R. 36). In March, 1932, the Air Reduction organization, second largest producer and marketer of CO_2 gas in the United States, of which plaintiff Carbonic Dispensing is a part, took over and ever since has been operating the liquefiers under an exclusive license for the life of the patents (R. 36, 37; Plffs. Ex. 3, R. 195, 264, 265).

The experience of this licensee with the device tells perfectly the story of the prior art practice and the commercial and practical accomplishments brought about by the liquefier.

The liquefier is operated in two ways: in the "customer" operation and in the "plant" operation (R. 256, 257). In the "customer" operation it is permanently installed in the customer's place of business. It produces, stores and dispenses the gas and eliminates entirely the cylinder. Solid CO_2 is shipped to the user's place of busi-

ness and converted into gas at the point of utilization (R. 256). In addition to bottlers, druggists and others using CO_2 for carbonating beverages, multiple units of "customer" liquefiers have been installed by the licensee for such users as Pittsburgh Plate Glass, E. I. duPont Nemours & Co., National Lead, and others of equal importance (R. 259). The cost to the licensee of solid CO_2 in its liquefiers has been less than 1c per lb. (Sched. B, R. 110), and the average price received by it from its CO_2 gas customers has been about 7c per lb. (Plffs. Ex. 94, R. 122). Defendants in this suit assert a reduction in cost from 30c down to 5c per lb. (R. 237).

But the really astonishing record of the liquefier's performance is in the plant operation. In this operation the manufacturer instead of producing his CO_2 gas in a few central "coke" plants, installs liquefier units in various key cities to which he formerly shipped cylinders of gas (R. 79-80). The gas is produced and the cylinders are filled at these distribution points instead of at the central plants as formerly (R. 20, 21, 22). Thus, the shipping of cylinders from plant to branch is entirely eliminated and localized to the distance between distributing station and customers (R. 22).

Between October, 1932, and December, 1936 (three and a half years of plant liquefier operation), the licensee-plaintiff, as a result of changing from the prior art method to the Rudd liquefier, effected savings of (1) $636,000 in capital investment; (2) $196,229.26 in production costs, and (3) $261,536.79 in transportation costs, a total in tangible savings of $1,093,766.05 (R. 91, 87, 117).

The liquefiers used in the above "plant" operation cost $60 each, licensee's total investment in 26 plant liquefiers being $1500 (R. 77, 78). Its total investment in plant liquefier equipment (including the liquefiers) as

of December 31, 1936, was $43,410.03 (R. 74). These liquefiers were capable of supplying many times the amount of gas which the licensee could sell (R. 106, 107). The four-unit liquefier plant in Chicago alone produced 24,000 lbs. of CO_2 gas in one day (R. 102).

Plaintiff-licensee's total investment in "coke" plant CO_2 producing equipment in October, 1936, was $696,574.21 (R. 74), its total investment in plant buildings was $408,564.31 (R. 76), its costliest "coke" plant being at Newark, N. J., the cost of which when acquired, including the building which housed it, being $495,509.45 (R. 108). This plant was closed down in September, 1934, and replaced by a four-unit liquefier plant installation (R. 71) costing $3,553.37.

Far beyond the expectation of the inventor, the liquefier eliminated the costly "coke" plant; the expensive freight charges on CO_2 cylinders, and reduced substantially the production cost of carbonic gas.

Imitation and infringement by defendants' "converter" were found by both courts below (R. 369, 462), and conceded by defendants.

Rulings Below.

Both courts below ruled as matter of law that Rudd's liquefier was anticipated by patents issued to Huston, Slate, and Achenbach and by an article by Kuss (R. 366; 465). Analysis of the Rudd patent, comparison with and comments on the others are in our written argument. This much, however, may be stated here: Only one of these devices, Slate's, was in the CO_2 art. His mechanism never went into actual operation and his idea was discarded as not workable (R. 162-163). Huston's is on a

manhole plate for steam boilers (R. 400). Achenbach's French patent (drawings and translation at R. 441, 443, 347-349) describes a "pressure steam cooker," which is used for cooking food. It dealt with pressures of 10 or 15 lbs. (R. 168, 181), and temperatures of about 250° F. Kuss wrote an article on boiler manhole practice (R. 445).

SPECIFICATION OF ERROR.

By the settled law of this court, Rudd, on the uncontested facts, is entitled to a patent; and the court below erred in ruling otherwise.

REASONS FOR THE ALLOWANCE OF THE WRIT AND SUPPORTING ARGUMENT.

I.

Rudd's Liquefier and the prior art. Comparison of rulings below with opinions of Supreme Court.

Rudd

The patent issued to Rudd is on a "Method of and Apparatus for Utilizing Phase Changeable Materials" (R. 386). The phase changing material referred to is CO_2 gas (R. 387-9). The caption description of the invention is eloquent. He utilized the peculiar properties of CO_2 gas in its frozen, changing, and gaseous states to make the gas available to the consumer at a small fraction of former cost; and he built an apparatus which made his idea work, with remarkable results. Solid CO_2 may be shipped great distances with relatively small loss in melting or sublimation. Gaseous CO_2 can be shipped only in tightly sealed heavy steel containers. Solid CO_2, which is very cold (-109°F.), exposed to warmth, converts itself into gaseous CO_2. Rudd's liquefier is a steel cylinder into the open top of which the solid is spilled. A novel sealing device in the form of a closure plate at the top confines the forming gas, and the gas seals itself in by its own pressure. In a short time it is ready for use. Outwardly, the container and its sealing device are simple. There are only two main parts: the steel cylinder with

its filling opening at the top, and the closure plate, which hangs suspended by a chain inside the opening when the cylinder is empty. Yet the problem of producing and storing the gas was not easy. The pressures developed are tremendous. At room temperature the pressure on the walls and lid of the container is 1,000 lbs. per square inch, and the upward pressure on the 10-inch lid when the container is filled with gas is 50,000 lbs. CO_2 gas is a dangerous explosive. Solid CO_2 is very cold. The container and the lid are subjected to extremely low temperatures and tremendously high pressures. They had to be designed and built to overcome these conditions, to insure a fluid-tight seal at all pressures, to be foolproof, and easy to operate. The device seals itself solely from the pressure created by the forming gas, and the only manual operation needed is the dropping in of the solid CO_2, grasping the lid or closure plate by its handle, seating it in place, and holding it there manually for two or three seconds. The gas does the rest (R. 171). There are no bolts, screws or threads, no powerful wrenches or clamping devices.

In results, Rudd rubbed a lamp. The industry no longer produces gaseous CO_2 in $700,000 coke plants. It is now produced in $60 liquefiers. No longer is it shipped in 110-lb. steel drums from plant to consumer. Instead, you ship solid CO_2 to the liquefier at the consumer's place of business, and he produces his own gas by dropping the dry ice into the container and holding the lid in place for 2 or 3 seconds. Nature does the rest. Rudd's "customer" liquefier eliminates entirely the steel drum of the old art. This liquefier produces the gas, stores it, dispenses it, and there is no cylinder. His "plant" liquefier eliminates the highly expensive producing unit, the coke plant, and localizes the shipping radii of cylinders

to the distance between the local liquefier plant and the customer. Already, millions of dollars have been saved in production, transportation, and marketing costs.

ston
d Kuss

In 1902 Huston was granted a patent on a manhole for steam boilers (R. 398). Kuss published an article in 1917 on "Manholes for Steam Boilers" (R. 445). District Judge Barnes ruled that Huston and Kuss and Rudd were all trying to do the same thing (R. 366), and the C. C. A. held that the Huston device and the Kuss article and the Rudd liquefier were in the same art (R. 466). Both courts ruled Rudd's patent anticipated by Huston and Kuss. These opinions conflict with *Potts* v. *Creager*, 155 U. S. 597, 603, 606, 609; *Smith* v. *Snow*, 294 U. S. 1, 17; *Hobbs* v. *Beach*, 180 U. S. 383, 389; *Topliff* v. *Topliff*, 145 U. S. 156, 161.

The steam boiler manhole cover plate of Huston and Kuss utilized, in part, steam pressure from within the boiler for a seal, but a manhole in a steam boiler is not in the same art as a liquefier in the carbonic gas industry. If they are not in the same art, then the classical principles laid down by this court in *Potts* v. *Creager*, 155 U. S. 597, 606, *et seq.*, forcefully apply:

> "• • • But where the alleged novelty consists in transferring a device from one branch of industry to another, the answer depends upon a variety of considerations. In such cases we are bound to inquire into the remoteness of relationship of the two industries; what alterations were necesary to adapt the device to its new use, and what the value of such adaptation has been to the new industry. If the new use be analogous to the former one, the court will undoubtedly be disposed to construe the patent more strictly, and to require clearer proof of the exercise of the inventive faculty in adapting it to the new use—particularly if the device be one of minor importance in its new field of usefulness. On the other

hand, if the transfer be to a branch of industry but remotely allied to the other, and the effect of such transfer has been to supersede other methods of doing the same work, the court will look with a less critical eye upon the means employed in making the transfer. Doubtless, a patentee is entitled to every use of which his invention is susceptible, whether such use be known or unknown to him; but the person who has taken his device and, by improvements thereon, has adapted it to a different industry, may also draw to himself the quality of inventor.

* * * * * * * *

"Indeed, it often requires as acute a perception of the relations between cause and effect, and as much of the peculiar intuitive genius which is a characteristic of great inventors, to grasp the idea that a device used in one art may be made available in another, as would be necessary to create the device *de novo*. And this is not the less true if, after the thing has been done, it appears to the ordinary mind so simple as to excite wonder that it was not thought of before. The apparent simplicity of a new device often leads an inexperienced person to think that it would have occurred to any one familiar with the subject; but the decisive answer is that with dozens and perhaps hundreds of others laboring in the same field, it had never occurred to any one before. The practiced eye of an ordinary mechanic may be safely trusted to see what ought to be apparent to every one. As was said by Mr. Justice Bradley, in *Webster Loom Co.* v. *Higgins*, 105 U. S. 580, 591 [26:1177, 1181]: 'Now that it has succeeded, it may seem very plain to any one that he could have done it as well. This is often the case with inventions of the greatest merit. It may be laid down as a general rule, though perhaps not an invariable one, that if a new combination and arrangement of known elements produce a new and beneficial result never attained before, it is evidence of invention.'

> "As a result of the authorities upon this subject, it may be said that, if the new use be so nearly analogous to the former one, that the applicability of the device to its new use would occur to a person of ordinary mechanical skill, it is only a case of double use, but if the relations between them be remote, and especially if the use of the old device produce a new result, it *may* at least involve an exercise of the inventive faculty."

Could any two industries be more remotely related than the manufacture of steam boilers and the production of CO_2 gas for carbonating beverages? Assume then, that Rudd borrowed Kuss' idea and transferred it to a branch of industry but remotely allied. The effect of the transfer being concededly to supersede other methods of producing CO_2 gas which had prevailed for 75 years, is not Rudd under the authority of the above quotation entitled to the protection of a patent for what he did?

The courts below also ruled that entirely outside of the prior art Rudd's idea lacked invention. In this, too, they conflict in their holdings with the passage above quoted. The apparent simplicity of Rudd's device led the court below into the error that patentable invention was lacking. The decisive answer is, it had never occurred to anyone else before, and the practiced eye of an ordinary mechanic could be safely trusted to see what ought to be apparent to everyone. Rudd's device solved a problem which had baffled the industry since the Civil War.

Even if Huston's device had been in the same art, it did not anticipate. A boiler manhole plate is removed and replaced for purposes of inspection once or twice a year (R. 158). Rudd's device seals every 20 minutes (R. 102). In setting the manhole cover a mechanic and assistant are usually required (R. 156), the assistant hold-

ing up the plate, yoke and bolts, while the mechanic twists the plate into position, properly positions the yoke, then tightens up the bolts. This is done while the boiler is cold and the initial cover-setting operation takes two men from 20 minutes to half an hour (R. 158). Later, as the boiler is fired up slowly (which takes many hours), the mechanic taps around the plate from time to time with a hammer and tightens up further on the bolts (R. 157), to help in retaining a tight seal. A bolt, not pressure, is relied upon first for the tight seal (R. 157), and as the bolt becomes loose, while the boiler is in service a leak is expected (R. 158).

This manhole cover could not possibly perform the function of the patented closure plate in the Rudd liquefier. Kuss is dealing with steam, Rudd is dealing with CO_2 gas, which attains pressures infinitely greater than steam. Rudd is dealing with a different problem. His device functions differently, and it produces a different result. In *Topliff* v. *Topliff*, 145 U. S. 156, 161, this court said:

> "* * * It is not sufficient to constitute an anticipation that the device relied upon might, by modification, be made to accomplish the function performed by the patent in question, if it were not designed by its maker, nor adapted, nor actually used, for the performance of such functions."

This foreign patent (R. 441, 443), translated (R. 347-349), describes a "pressure steam cooker" used to cook food. It reveals a sealing device which is tightened by steam pressure. But it deals with pressures of 10 to 15 lbs. (R. 168, 161), with temperatures of about 250° F. In the liquefier the temperatures involved are way below zero, and the pressure is exceedingly high and danger-

ous. In the steam cooker the pressure would not approach the dangerous range encountered in the liquefier practice.

Although a steam cooker is a common piece of domestic cooking apparatus (R. 180), it does not appear that the scheme of this French patent has gone into actual use (R. 168). Certain it is, also, the French device and Rudd's liquefier are in different arts, remote from each other, and what has been said about the steam boiler manhole and manhole practice applies equally to this French patent. In addition, being a foreign patent, the requisites of anticipation are even greater. (See Judge Sanborn's opinion, *Donner* v. *Sheer Pharmacal Corp.*, 64 F. [2d] 217.)

In the recent case of *Smith* v. *Snow*, 294 U. S. 1, 17, a patent awarded to Smith was ruled valid by the Supreme Court where he advanced the art of incubating eggs by circulating warm air into the incubator by means of an electric fan. Similar means (presumably) had previously been employed for conditioning tobacco and other materials. The analogy was ruled too remote, the Supreme Court saying:

> "The Proctor & Knowles Patent, No. 426,321 of 1890, and the Schwartz Patent, No. 535,175 of 1895, for methods and apparatus for conditioning tobacco and other materials, as well as other procedures for ventilation, are so remote from the problems and procedure for hatching eggs as to call for no comment."

Slate

This patent, issued in 1926, is on a "Method of Simultaneously Carbonating and Refrigerating Liquid." It is the only device in the same art with Rudd. It has a pressure seal and it deals with solid and gaseous CO_2. Slate abandoned the invention before it got beyond the experimental stage (R. 162). The closure and sealing con-

struction are complex and involved. The patent shows an open top cylinder 17, into which solid CO_2 could be charged. It was provided with a screw-threaded cap 5, which had to be screwed on and off every time the cylinder was sealed (R. 161). The closure and sealing construction involved, also, not only the screw-threaded cap 5, but the additional parts 6, 7, 8, 9 and 10 (R. 160). The proposed mode of operation was to unscrew and remove the cap and attached parts, dump in the solid CO_2, screw the cap 5 (carrying the parts 6 to 10) back into position, and then tighten up the handle 9 to compress the gasket (R. 161).

Even if Slate's apparatus were workable, it is too crude to constitute an anticipation of Rudd's idea. The screw-threaded cap has to be taken off and put back on with each successive seal. Heavy force is required to be applied to the cap and to hold the cylinder in place while the cap is being twisted off and on, with the result, as stated above, that development of the Slate mechanism was abandoned.

There are but two parts to Rudd's device. There is really but one operation in sealing. Draw the closure plate up to its seat and hold it for 3 or 4 seconds. The different and more complicated mode of the Slate device clearly distinguishes it from the Rudd patent.

In *Deering* v. *Winona Harvest Works,* 155 U. S. 286, the court, speaking of an abandoned invention set up as prior art, said (301, 302):

> "If it had been a success, he would hardly have thrown it aside permanently. * * * —his efforts in that direction must be relegated to the class of unsuccessful and abandoned experiments, which, as we have repeatedly held, do not affect the validity of a subsequent patent. [Citing cases.]"

In *Brown* v. *Guild,* 90 U. S. 181, 211, this court said:

> "* * * If, upon the whole of the evidence, it appears that the alleged prior invention or discovery was only an experiment and was never perfected or brought into actual use, but was abandoned and never revived by the alleged inventor, the mere fact of having unsuccessfully applied for a patent therefor, cannot take the case out of the category of unsuccessful experiments."

In the famous barbed wire fence case, *Washburn & Moen Mfg. Co.* v. *Barbed Wire Co.,* 143 U. S. 275, 282, this court again discounted prior inventions that never passed the laboratory state, in this language:

> "The inventions of Hunt and Smith appear to be scarcely more than tentative, and never to have gone into general use."

See, also, *Smith* v. *Snow,* 294 U. S. 1, 17.

II.

The court below erred in declining to consider Rudd's achievements and in ruling that patentable invention was absent.

The learned court below, conceding that the liquefier satisfied "an acute demand long existing" (R. 463), that Rudd's is a device "for which there is and long has been a demand from producers of carbonated beverages" (R. 463), nevertheless declined (R. 462) to weigh his accomplishment and ruled that patentable invention was lacking, even in the absence of any prior art (R. 465). This court has always recognized and ruled that patentable novelty and invention are presumed to reside in a de-

vice which satisfies an old and recognized want and which successfully solves a problem which has remained unsolved for a great length of time. And the fact that in retrospect the solution may seem simple does not alter the proposition that more than mere mechanical skill is involved. *Smith* v. *Snow*, 294 U. S. 1, 17; *Expanded Metal Co.* v. *Bradford*, 214 U. S. 366, 381; *Washburn & Moen Mfg. Co.* v. *Barbed Wire Co.*, 143 U. S. 275, 283; *Hobbs* v. *Beach*, 180 U. S. 383, 389; *Waxham* v. *Smith*, 294 U. S. 20, 22; *Paramount Publix Corp.* v. *American Tri-Ergon Corp.*, 294 U. S. 464, 474.

In *Expanded Metal Co.* v. *Bradford*, 214 U. S. 366, 381, *supra*, the court said:

> "* * * The fact that the invention seems simple after it is made does not determine the question; if this were the rule, many of the most beneficial patents would be stricken down. It may be safely said that if those skilled in the mechanical arts are working in a given field, and have failed, after repeated efforts, to discover a certain new and useful improvement, that he who first makes the discovery has done more than make the obvious improvement which would suggest itself to a mechanic skilled in the art, and is entitled to protection as an inventor."

In *Smith* v. *Snow*, 294 U. S. 1, 6, Smith arranged eggs in tiers in different stages of incubation in the incubator, circulated warm air into the incubator at even temperatures by means of a fan. His idea, while simple, was new, and this fact, plus results of epochal importance, earned him a valid patent. This court said:

> "His method thus solved the major problems of artificial incubation in a highly efficient manner. It was novel and involved invention. [Citing the Barbed Wire Fence case and others.]"

In the *Barbed Wire Fence* case, 143 U. S. 275, the inventor coiled a barbed wire around ordinary fence wire, and succeeded where others had failed. The court's famous language is pertinent here (282):

> "Under such circumstances courts have not been reluctant to sustain a patent to the man who has taken the final step which has turned a failure into a success. In the law of patents it is the last step that wins. It may be strange that, considering the important results obtained by Kelly in his patent, it did not occur to him to substitute a coiled wire in place of the diamond shape prong, but evidently it did not; and to the man to whom it did ought not to be denied the quality of inventor. There are many instances in the reported decisions of this court where a monopoly has been sustained in favor of the last of a series of inventors, all of whom were groping to attain a certain result, which only the last one of the number seemed able to grasp."

Apply these Supreme Court principles and tests here. Rudd found the perfect answer to a problem in economic waste in which a major industry had floundered for 75 years. His liquefier revolutionized the production and marketing of CO_2 gas. It antiquated the coke plant. The importance and value of his invention were recognized by the Air Reduction organization when, in 1932, it took an exclusive license from Carbo-Frost. In 3½ years of plant liquefier operation this one licensee, by using the liquefier, saved more than $1,000,000 in capital investment, in production, distribution and marketing costs. The "customer" liquefier eliminated entirely the shipping charges on steel cylinders. Its value has been recognized and appropriated to use by such institutions as duPont Nemours, National Lead, Pittsburgh Plate Glass, Canada Dry, and other institutions of calibre.

If the court below had considered these undisputed facts in the light of what this court has repeatedly ruled as to apparently simple inventions, marked by outstanding success, the valuable patent right given to Rudd would not have been taken away.

Nor did the lower court justifiably infer that his method and device were simple. Compared with the inventions in the incubator and barbed wire fence cases, it was puzzling and complex. In addition, Rudd recognized and turned to highly successful commercial practice the unusual physical and chemical qualities of CO_2 gas. Utilizing its solid state he shipped it in bulk to the consumer, eliminating the steel drum. And when the solid was dropped into his liquefier he made the escaping gas its own jailer. And he made the solid CO_2 produce the commercial product—CO_2 gas. This alone, under the law of this court, was patentable invention.

In *Waxham* v. *Smith,* 294 U. S. 20, 22, Smith utilized the heat given off by eggs in different stages of incubation to aid in the incubation of other eggs. The court said:

> "* * * By the use of materials in a particular manner he secured the performance of the function by a means which had never occurred in nature, and had not been anticipated by the prior art; this is a patentable method or process. *Corning* v. *Burden,* 15 How. 252, 267, 268; *Risdon Iron & Locomotive Works* v. *Medart, supra* [158 U. S.], 77; *Cochrane* v. *Deener,* 94 U. S. 780, 788."

III.

In failing to allow Rudd the two credit presumptions flowing from the issuance of patent and the confessed infringement of defendants, the court below erred.

The last word of this court on the weight to be given to the fact of the issuance of the patent and to conceded imitation and infringement is in *Radio Corp.* v. *Radio Eng. Laboratories,* 293 U. S. 1, 7, 8, where Mr. Justice Cardozo, speaking for this court, said (7):

> "• • • But the respondent does not move very far upon the pathway to success by showing that what has been heretofore determined is without conclusive force. A patent regularly issued, and even more obviously a patent issued after a hearing of all the rival claimants, is presumed to be valid until the presumption has been overcome by convincing evidence of error.
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> • • • • • • • •

(8):

> "• • • Through all the verbal variances, however, there runs this common core of thought and truth, that one otherwise an infringer who assails the validity of a patent fair upon its face bears a heavy burden of persuasion, and fails unless his evidence has more than a dubious preponderance."

In *Deering* v. *Winona Harvest Works,* 155 U. S. 286, 301, the court said:

> "This case is an apt illustration of the wisdom of the rule requiring such anticipations to be proven by evidence so cogent as to leave no reasonable doubt in the mind of the court • • •."

The Patent Office appreciated the distinction between the Rudd patent and boiler manhole cover practice. The

Rudd claims were allowed after the Cahill patent (R. 392) and the Heyser patent (R. 404) had been cited and considered (R. 327). The Huston patent is no closer to Rudd than these two.

Both courts below found that the defendants' device copied and infringed Rudd's patent. Indeed, imitation and infringement were conceded by defendants' counsel in both courts. More than this, defendants' own advertisement of their "converter" characterized it as (R. 239) a "Simple Yet Amazing Invention to Save Millions Yearly for Users of Carbonic Gas Everywhere!" (Plf. Ex. 7, R. 237-247).

Neither court below gave consideration to the fact that the Patent Office issued a patent or that the defendants confessedly copied Rudd's device.

Conclusion.

Rudd gave to the carbonic gas industry a new idea and a new device, which ranked in importance in that field with other great inventions of modern times. He was given a patent by one department of his Government. By another department it was taken away, in the face of the unchallenged record facts that (1) his was the first and only successful device of its kind in the commercial field, (2) the only prior patent in the same art was an abandoned and unworkable experiment, (3) almost overnight he advanced in marked degree the art of producing and merchandizing carbonic gas which art, up to that time, had not progressed for three quarters of a century, and (4) the defendants copied and confessedly infringed.

This ruling denied to Rudd an important Federal right and decided an important Federal question in a way contrary to the decisions of this court. Certiorari should issue.

Respectfully submitted,

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